Samsung SDS builds the best-of-breed cloud environment with Arista

Based on the underlay network of Arista Networks' 7010T and 7050SX switching platforms with Arista EOS CloudVision®, Samsung SDS integrated VMWare NSX into the overlay network to achieve logical separation among customers and build an efficient SDDC-based private cloud environment whilst minimizing the architectural changes of existing systems.

Highlights

Challenge

Samsung SDS, a provider of system construction and operation services to affiliated companies of Samsung Group, has made the decision to deploy SDDC (Software Defined Data Center) based integrated cloud infrastructure. SDDC will be used to manage the increase in new customers and their services, ensuring stability and flexibility of service provision and reduction in TCO.

Solutions

* Arista 7010T, 7050SX and Arista EOS CloudVision®

Results

* Reduced lead time from 3 months to 3 days for service deployment and provisioning of virtual and physical workload

* Cost savings through SDDC based integrated cloud infrastructure ecosystem in Samsung Group and its affiliated companies.

* Reduced capex by half with SDDC adoption

* Prevent customer (Samsung Group) information leakage from innovative and integrated SDDC solution adoption with offering the most control over the security by building up private cloud infrastructure instead of public cloud

* Network-wide visibility and single point of integration to VMWare NSX provided by Arista CloudVision platform

Project Background

Samsung SDS, Korea's largest IT solution & service company, operates IT outsourcing and infrastructure services, enterprise solution services and a business process outsourcing service to its clients.

Samsung SDS, which is in charge of system construction and operation within the Samsung Group and its affiliated companies, operates over 60,000 units in data centers spread across 10 global regions. Since 2015, more than 2,000 units of x86 servers have been deployed and 15 petabytes of storage have been added annually.

Previously, Samsung SDS' systems were operated separately by its customers and its customers legacy systems. For this reason there was a problem when a new service was introduced as a duplicate investment had to be made, such as purchasing new servers or additional storage, and the service application time was also delayed.

Samsung SDS decided to build a flexible and stable infrastructure that could quickly respond to any change or increase in customer services. Samsung SDS further reduce the TCO through consolidation, improve resource flexibility through rapid provisioning of virtual and physical workload. The shift to an SDDC based integrated cloud environment that enables stable and efficient service operation with high availability.

Challenge

There were two key challenges that Samsung SDS needed to address for the transition to a private cloud environment. The logical separation between customers within the network and the architectural changes of the existing system should be minimized.

Even with a consolidated infrastructure, it was expected to be logically separated in order to secure the existing physical separation. Applications and middleware also had to remain unchanged to avoid additional investments due to changes in the cloud environment.

In addition to maintaining the existing network topology (to prevent new security reviews within group), it was also important that the virtualization resources should be linked seamlessly with bare metal and legacy systems as the virtualization process progresses sequentially.

Eunho Choi, Advisory Engineer of Samsung SDS Cloud Technology Group said, " The two key challenges described above are the advantages of a private cloud environment versus a public cloud, and it was a necessary condition for securing our customers' competitiveness."

Samsung SDS decided to organize the network by deploying VMWare NSX in the overlay network based on the underlay network. The challenge was to select an underlay network solution that best supported VMWare NSX, yet guaranteed excellent performance and reliability. Arista was selected as the most suitable platforms after being reviewed as best network vendors meeting their requirements in the POCs.

"We are pleased to announce that Arista's solutions have been selected. They have excellent scalability, manageability and stability, and are already used by leading global companies which work best with VMWare NSX. "said Eunho Choi, Advisory Engineer.

Solution

Samsung SDS established VMWare NSX based VXLAN and NFV to provide logical separation between customers. It was able to minimize the architectural changes of existing systems by integrating Arista VTEP (VXLAN Termination End Point) based on Arista EOS CloudVision®, whjch is the platform for deeper integration with a broad array of Arista's ecosystem partner solutions such as VMware NSX.

Arista's CloudVision® platform provides network-wide visibility and single point of integration to NSX. Using CloudVision® as the integration point allows for changes in the network topology to be abstracted away from NSX.

Underlay network adopted a L3-based leaf-spine architecture that is optimized for availability, scalability, manageability and VMWare NSX operation.

The most important part of the process was connecting to bare metal devices. VMWare was connected to the logical switch created by the hypervisor, where the bare metal device was connected to the VLAN of the physical switch.

Samsung SDS found a solution in the integration of VTEP and VMWare NSX. It was a way to extend the VXLAN from the hypervisor to Arista's hardware platform. Eunho Choi, Advisory Engineer of Samsung SDS said, "The VLXAN gateway integration with NSX is very simple to set up and there is virtually no performance limitation by using Arista platforms."

This system configuration was well deployed to appliance servers and high-performance servers and it will be applied to network equipment that are challenge for the transition of virtualization in the future.

In addition, this system could be applied to the connection of external network equipment. By connecting the NFV uplinks to the VXLAN-based logical switches and connecting them to the external network, the NFVs can be freely moved and utilized in the cluster with spare resources.

Arista VTEP's workflow based on Arista EOS CloudVision® is very simple and easy to manage. Once VXLAN tunnel is created between hypervisor and hardware switch, the NSX controller and Arista VTEP automate the management of VXLANs, VLANs, bare metal servers, NAS, and storage. This allows administrators to greatly simplify large and complex networks with a simple screen configuration through the NSX Manager.

Conclusion

Currently, Samsung SDS has applied more than 100 VMware ESXi hypervisors and more than 1,000 VMs to three data centers. There are more than 10 customers deployed and more than 20 services are applied. The smooth integration of VMWare NSX and Arista VTEP based on Arista EOS CloudVision® made it possible for these transitions to be seamless and stable in a very short time.

Eunho Choi, Advisory Engineer of Samsung SDS said, "The stable underlay network supporting the overlay network was very important, and we were able to build the system successfully. VMWare NSX and Arista VTEP based on Arista EOS CloudVision® are the best collaboration for an SDDC-based integrated cloud. As a result of a highly reliable best practice solution, we can easily expand in the future, as well as introduce cloud services from other Samsung affiliates."

Santa Clara—Corporate Headquarters
5453 Great America Parkway,
Santa Clara, CA 95054

Phone: +1-408-547-5500
Fax: +1-408-538-8920
Email: info@arista.com

Ireland—International Headquarters
3130 Atlantic Avenue
Westpark Business Campus
Shannon, Co. Clare
Ireland

Vancouver—R&D Office
9200 Glenlyon Pkwy, Unit 300
Burnaby, British Columbia
Canada V5J 5J8

San Francisco—R&D and Sales Office 1390
Market Street, Suite 800
San Francisco, CA 94102

India—R&D Office
Global Tech Park, Tower A & B, 11th Floor
Marathahalli Outer Ring Road
Devarabeesanahalli Village, Varthur Hobli
Bangalore, India 560103

Singapore—APAC Administrative Office
9 Temasek Boulevard
#29-01, Suntec Tower Two
Singapore 038989

Nashua—R&D Office
10 Tara Boulevard
Nashua, NH 03062